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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/469,406	12/22/99	KESHAVARZI	A 042390.P7511

MMCI/0605  
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EXAMINER

KANG, D

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

06/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/469,406		<b>Applicant(s)</b> KESHAVARZI ET AL.	
	<b>Examiner</b> Donghee Kang		<b>Art Unit</b> 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |   |  |
|---|--|
| 15) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 20) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims **1, 4, 7-14, 17, 20-22, 25 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (Fig.1 and Fig.9).

Regarding claims **1, 8, 14, & 21-22**, admitted prior art by applicant discloses a die comprising (Fig. 1 & Fig.9):

a first conductor carrying a power supply voltage; a second conductor carrying a ground voltage; and semiconductor capacitor having a conductive gate voltage, in insulator dielectric, and semiconductor body. *See also page 5, line 16 - page 6, line 2 & page 9, lines 7-16.*

APA does not explicitly disclose the semiconductor capacitor operating in depletion mode between the first and second conductors to provide decoupling capacitance between the first and second conductor and the power supply voltage has a smaller absolute value than does a flatband voltage.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device

Art Unit: 2811

does.”(emphasis in original) *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Furthermore, APA teaches the capacitor 10 & 90 can have a depletion mode to provide decoupling capacitance when the power supply voltage ( $V_{cc}$ ) of the capacitor 10 & 90 is a between  $V_t$  and  $V_{FB}$ , as shown in Fig. 3 and Fig.8.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the operating voltage, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims **4, 17 & 25**, APA discloses in *Fig.1* the capacitor has a p+ gate poly and p+ source/drain regions in an n-body.

Regarding claims **7, 20, & 28**, APA discloses in *Fig. 9* the capacitor has a N+ gate poly and N+ source/drain regions in an P-body.

2. Claims **2-3, 5-6, 9-13, 15-16, 18-19, 23-24, & 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (Fig. 1 & Fig. 9) in view of Chern et al (US 5,032,892).

Regarding claims **2, 15, and 23**, admitted prior art (Fig.1) discloses all claimed invention except for semiconductor capacitor having an n-body. However, Chern et al teaches in Fig. 12C the semiconductor capacitor having an n-body (113).

At the time the invention was made, it would have been an obvious matter of design choice to form n well claimed structure, since such a modification would have involved a mere change in the polarity type of a component.

Regarding claims **3, 16, and 24**, admitted prior art (Fig. 9) as modified by Chern et al does not teach a poly gate having p+ type polarity. It would have been an obvious matter of design choice to form claimed structure, since such a modification would have involved a mere change in the polarity type of a component.

Regarding claims **5, 18, & 26**, APA (Fig.1) discloses a semiconductor capacitor having a p+ gate poly and p+ source/drain region but does not teach in a p-body. Chern et al teaches a semiconductor capacitor having a p-body. It would have been an obvious matter of design choice to form claimed structure, since such a modification would have involved a mere change in the polarity type of a component.

Regarding claims **6, 19, and 27**, admitted prior art (Fig. 1) as modified by Chern et al does not teach a poly gate having n+ type polarity. It would have been an obvious matter of design choice to form claimed structure, since such a modification would have involved a mere change in the polarity type of a component.

Regarding claims **9 & 11**, APA (Fig.9) discloses the gate voltage is provided by the first conductor but fails to disclose the die further comprising voltage circuitry to provide a body voltage to the semiconductor capacitor. However, Chern et al discloses

in Fig.8 the die comprise a voltage circuit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have voltage circuitry in die in order to provide a gate and S/D/B voltage.

Regarding claims **10 & 12**, APA (Fig.1) discloses the gate voltage is provided by the second conductor but fails to disclose a die further comprising voltage circuitry to provide a body voltage to the semiconductor capacitor. However, Chern et al discloses in Fig.8 the die comprise a voltage circuit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have voltage circuitry in die in order to provide a gate and S/D/B voltage.

Regarding claim **13**, APA does not discloses die further comprising additional capacitors at least some of which are not in the depletion mode.

Chern et al discloses in Fig.12C the die further comprising an enhancement mode capacitor (141). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a several capacitors in a die in order to reduce a manufacture process and save a cost.

### ***Conclusion***

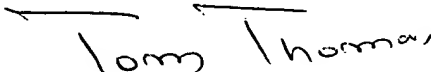
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Donghee Kang** whose telephone number is 703-305-9147. The examiner can normally be reached on Monday – Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for

Art Unit: 2811

the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
**TOM THOMAS**  
**SUPERVISORY PATENT EXAMINER**

Donghee Kang

May 25, 2001